

Abstract Submitted
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Band Structures in ^{230}Th R.V.F. JANSSENS, S. ZHU, M.P. CARPENTER, I. AHMAD, C.R. HOFFMAN, T.L. KHOO, B.P. KAY, F.G. KONDEV, T. LAURITSEN, C.J. LISTER, E.A. RICARD-MCCUTCHAN, D. SEWERYNIAK, Y. TOH, Argonne National Laboratory, D. AYANGEAKAA, S. FRAUENDORF, U. GARG, D. PATEL, J. MATTA, University Of Notre Dame, W. REVIOL, D.G. SARANTITES, University of Washington, X. WANG, Florida State University, S. LALKOVSKI, University of Sofia — Experimental evidence for the recently proposed phenomenon of condensation of rotational-aligned octupole phonons [1] has been observed in ^{240}Pu [2] and ^{238}U [3]. In order to study this phenomenon in ^{230}Th , an experiment has been carried out at ATLAS. The octupole band was extended up to spin 29. In addition, three positive-parity bands were observed for the first time. With increasing spin, the octupole band and the ground state band (gsb) start forming a smooth sequence of states with alternating spin and parity. Furthermore, the Routhian of the octupole band becomes lower than that of the gsb at rotational frequencies above 0.24 MeV. A band built on the second 0^+ state at 567 keV was discovered in this experiment, but it decays only to the gsb. [1] S. Frauendorf, Phys. Rev. C 77, 021304(R) (2008), [2] X. Wang et al., Phys. Rev. Lett. 102, 122501 (2009), [3] S. Zhu et al., Phys. Rev. C 81, 041306(R) (2010). This work was supported by DOE, Office of Nuclear Physics, under Contract No. DE-AC02-06CH11357.

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